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Food Plant of a Supralittoral Flightless Weevil, *Isonycholips gotoi* (Coleoptera, Curculionidae)

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Isonycholips gotoi CHÛJÔ et VOSS, 1960 (Japanese common name, Hamabe-zoumushi) is a supralittoral flightless weevil that is distributed along shorelines of sandy beaches in Japan, Korea, and the Maritime Territory of Russia (MORIMOTO, 2007). *Isonycholips gotoi* well feeds on sea grasses drift ashore (*e.g.*, MORIMOTO, 1993; NAKAMURA, 1995; SAWADA, 2004), but this weevil would also occur under seaweeds drift ashore (MORIMOTO, 1984). Actually, many individuals of *I. gotoi* were observed under a composed mixture of sea grass and seaweeds drifted ashore (KOBAYASHI, personal observation). Thus, it is not yet confirmed whether *I. gotoi* feeds on seaweeds or not. In this paper, I performed non-choice feeding tests of *I. gotoi* for the commonly observed sea grass (tape grass) and seaweeds (sea tangle, sea lettuce, and gulfweed) occurring along the shorelines in Japan.

Materials and Methods

A total of 32 adult individuals of *I. gotoi* were sampled under a decomposed sea grasses and seaweeds drifted ashore at Masaki seaside beach in Iwate prefecture, Honshu. One plant species of sea grass, tape grass (Zosteraceae; *Zostera marina*, Jpn. common name; Amamo), and three plant species of seaweeds, sea lettuce (Ulvaceae; *Ulva* sp., Jpn. common name, Aosa), gulfweed (Sargassaceae; *Sargassum* sp., Jpn. common name, Hondawara), and sea tangle (Laminariaceae; *Laminaria* sp., Jpn. common name, Konbu) were used for non-choice feeding tests, since these plants were commonly found along the beaches of the northern part of Japan. Sea grass species was sampled from Akkeshi Town, Hokkaido, and seaweed species were sampled from Zenibako, Otaru City, Hokkaido.

Pieces of plants (about 0.1 g) were each placed in a transparent polystyrene case (65×55×

Table 1. Fecal pellets of adult individuals of *Isonycholips gotoi* for four plant species during 48 hours in non-choice feeding tests.

Plant species	(*N*)	Fecal pellets in each beetle
Zostera marina (Zosteraceae)	(8)	+, +, +, +, +, +, +, +
Ulva sp. (Ulvaceae)	(8)	−, −, −, −, −, −, −, −
Sargassum sp. (Sargassaceae)	(8)	−, −, −, −, −, −, −, −
Laminaria sp. (Laminariaceae)	(8)	−, −, −, −, −, −, −, −

N means the examined number of individuals.

20 mm), the bottom of which was covered with moist filter paper soaked in marine water. Eight weevil individuals were used for each treatment. A beetle was released into the case and was allowed to feed on one of four plant species during 48 hours. Prior to the examination, beetles were settled on starvation for 72 hours. Feeding tests were performed at 23℃ in dark conditions. The condition of plant's pieces and beetle's fecal pellets were checked after 48 hours. To assess the difference between treatments, I performed Fisher's exact test (p-value was corrected with Bonferroni method).

Results and Discussion

Feeding traces of *Isonycholips gotoi* in all eight individuals were observed on tape grass, but none of them were confirmed on sea lettuce, gulfweed, and sea tangle. And numerical powdery fecal pellets of this weevil were recognized in the tape grass treatment, although these were not in other treatments (Table 1). The difference of fecal pellets between tape grass treatment and others were obviously significant ($p < 0.00016$). This result strongly indicates that this weevil feeds on a sea grass and well supports above previous reports (MORIMOTO, 1993; NAKAMURA, 1995; SAWADA, 2004). And also, the present study suggests that *I. gotoi* does not feed on seaweeds, even though they occurred under a mixture of sea grasses and seaweeds drifted ashore.

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